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ADVISORY COMMITTEE ON
ADVANCED TELEVISION SERVICE

IMPLEMENTATION SUBCOMMITTEE

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Minutes of the Seventeenth Meeting

1. The seventeenth meeting of the Implementation Subcommittee convened at 10:45 a.m. on April 21, 1992, in the Commission Meeting Room at the Federal Communications Commission, 1919 M Street, N.W., Washington, D.C. and adjourned at 11:55 a.m.

2. The following Subcommittee members were present:

George Vradenburg III, Co-Chair
Brenda Fox, Vice Chair
Valerie Schulte, representing Henry Baumann, Vice Chair
Charles Jackson, Chair, Working Party 1, Policy & Regulation
S. Merrill Weiss, Acting, Chair,
Working Party 2, Transition Scenarios

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3. The designated federal employee attending was Gina Harrison, Staff Attorney, FCC Mass Media Bureau.

4. The minutes of the sixteenth meeting were adopted.

5. Mr. Jackson summarized the activities of Working Party 1. He said that the group met on January 29, 1992, and reviewed a draft paper on implementation issues. That paper was later finalized, a consensus reached, and the paper was submitted for inclusion in both the Fifth Interim Report of the Implementation Subcommittee, and the Fifth Interim Report of the Advisory Committee. Zenith later questioned a sentence regarding manufacturing issues contained in the Working Party's report on implementation issues. Mr. Jackson said that Zenith's concern would be addressed at the next Working Party 1 meeting.

6. Working Party 1 also met on April 16, and discussed simulcasting issues. Three aspects of simulcasting were discussed at that time: (1) what constitutes simulcasting; (2) what rules will govern subscription offerings on ATV; and (3) what kind of technical flexibility to offer ancillary, non-broadcast services consistent with any ATV carriage requirements that may be adopted, would best serve the public interest. Mr. Jackson said that these three issues are interwoven with the definition of simulcasting. He stated that Working Party 1 is preparing an outline considering these issues and would meet again on April 30 to review this outline and begin converting the outline into a report.

7. Chairman Vradenburg noted that the current rules governing NTSC operation allow use of certain portions of the NTSC channel for ancillary

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services, and asked if Working Party 1 is considering the same technical flexibility for the ATV channel. Mr. Jackson noted that ATV doesn't have a vertical blanking interval, but that there may be capacity in the ATV signal that is not used part of the time. Thus, there may be a variety of ways to meet the ATV carriage requirements and yet still have substantial capacity left to meet other telecommunications needs. Mr. Jackson described the crucial question in this context as being how to formulate regulation which satisfies the Commission's goals regarding ATV, but which provides broadcasters with the widest flexibility possible in meeting other public interest needs. Chairman Vradenburg suggested that the Working Party review the possibility of using the NTSC channel for some sort of digital transmission during non-broadcast or off hours. Regarding subscription services, Chairman Vradenburg opined that because the Commission has announced its intention to require broadcasters to return their existing NTSC channel, no policies should be developed or recommended for the ATV channel which might hinder or be inconsistent with this Commission goal.

8. Ms. Fox reiterated her apprehension about Working Party 1 addressing the issue of what constitutes simulcasting, and noted that its assignment in this area has seemingly broadened since she raised her same concerns at the January Subcommittee meeting. Ms. Fox questioned whether Working Party 1 is the proper forum for addressing and making a recommendation involving such a public policy issue which the individual industries and participants will be presenting to the Commission for a decision. She said that the simulcast issue is best presented directly to the Commission for review by the individual parties represented in the Working Party. Ms. Fox stressed that a Working Party recommendation could carry special weight with the Commission because the group, in theory, is representative of something other than the composite of the participants active in the process. She said that regardless of whether a consensus is reached, if a working party within the Advisory Committee issues a report or takes a position or the Advisory Committee itself takes a position on a controversial issue such as simulcasting which indicates a merging of opinions into one position, that report or position could be perceived as a unified stance and, having come from the Advisory Committee could be accorded significant weight by the Commission, to the detriment of other opposing views of the issue. Ms. Fox maintained that allowing individuals with an interest in simulcasting matters to present their case to the Commission through the established process best ensures that all sides of the pertinent issues are represented, resulting in a balanced approach to the issue. A presentation by the Working Party would not necessarily provide an evenhanded view of the issues, but could be simply a reflection of the makeup of that Working Party, according to Ms. Fox.

9. Ms. Schulte responded to Ms. Fox's concerns, stating that she could see no harm which could result from the Working Party developing a record for the Commission to consider for whatever value it might have. Ms. Schulte indicated that participation in the Working Party is open to all interested parties and that the work product of the group is balanced to the extent that industries concerned with a specific issue participate and make their views

known to the Working Party. Ms. Fox responded that certain industries, which are limited by finances, location, or staff size, are less able to actively participate in Working Party activities than other, more affluent industries located closer to Washington where a lot of the Working Party activities take place. Ms. Fox noted that such variances have not been a particular problem to date, but could place industries with less flexibility at a disadvantage in presenting their views to a Working Party when an especially controversial issue, such as simulcasting, is considered.

10. Mr. Jackson addressed Ms. Fox's remarks, stating that the simulcasting issue might be one where a consensus would be unachievable, and that the Working Party might simply submit an options paper where the document would simply lay out topics relating to simulcasting with each and every individual option and the pro and con arguments supporting or contradicting those options. He said that it would be "more professional" to conduct that process without associating certain industry segments with particular views. Mr. Jackson added, however, that some simulcasting issues may prove to be so contentious that the Working Party may not be able to reach enough of an agreement even to produce such an impartial options paper. On the other hand, Mr. Jackson said that some simulcast-related topics might prove readily conducive to a consensus. In any case, Mr. Jackson maintained that because of the importance of the simulcasting issue to the public interest, it would be worth the Working Party's time and effort to work the issue through, despite the contentious nature of simulcasting. Mr. Jackson emphasized that he will work to maintain a balance and ensure that all points of view on the simulcasting issue are fairly represented in the Working Party's product.

11. Ms. Fox acknowledged that, although she still has reservations about Working Party 1 addressing the simulcasting issue, she would be less troubled if the Working Party, as suggested by Mr. Jackson, submits an issues identification paper (which does not attempt to push one way or another, but simply is a litany of the issues surrounding simulcasting and pulls together all the views to be presented eventually on an individual basis to the Commission) than if the resulting document came out with a particular recommendation and accompanying minority and majority reports.

12. Chairman Vradenburg, on that note, stated that he considered the simulcasting issue to be properly discussed in Working Party 1 and asked that the group continue its efforts to produce a document on the matter. He indicated that Working Party 1 is charged with policy and regulation and thus, public policy issues are not "off-bounds" for the group's deliberations. Mr. Jackson elaborated that the political nature of some of the issues surrounding ATV are such that a concurrence on these issues may prove impossible to reach, and that other issues would not entail such problems. He added that these characteristics can be difficult to predict until work is really begun. Chairman Vradenburg agreed with the suggestion not to identify particular viewpoints with particular industries or to categorize particular viewpoints as minority and majority. He said that an impartial paper on simulcasting would be valuable because at least it would be a good faith attempt to point out the

issues and the pros and cons in a public policy context. Chairman Vradenburg indicated that there would be some duplication of effort between the Working Party activities and public comment on the simulcasting issue, but he opposed the suggestion that the Advisory Committee avoid dealing with controversial issues, noting that virtually everything that the Advisory Committee is doing is potentially controversial. He added that the Advisory Committee has been able to reach agreement on the issues considered so far, but that the Commission didn't contemplate that the Committee would fail to act whenever a consensus failed to emerge. He said that obviously a consensus on the simulcast issue is a desirable goal which Working Party 1 should be driving towards. Nonetheless, if the members fail to agree, it would still be useful to have a paper which doesn't take a position, and doesn't identify different industries with different viewpoints or offer a recommendation.

13. Mr. Heuer indicated that the notice of the April 30 Working Party 1 meeting dealing with simulcasting is short, and no agenda has been released as yet for that meeting, so interested parties have little if any time to plan on participating in that meeting. Chairman Vradenburg asked that Mr. Jackson seek a procedure for releasing Working Party 1 meeting agendas to a wider circle of potential participants. Mr. Jackson explained that currently he notifies the active participants (parties who have attended the last couple of Working Party meetings) of upcoming meetings and accompanying agendas by mail and uses the weekly Commission meeting notice to announce Working Party meetings.

14. Mr. Weiss reported on the activities of Working Party 2. He said that the group has completed its schedule of meetings with ATV system proponents. He noted that, although General Instruments, a part of the Advanced Television Alliance (ATVA), participated in the proponent meetings, the Massachusetts Institute of Technology (MIT), the participant of ATVA identified as the representative of the Channel Compatible DigiCipher system, was not present at either proponent meeting. MIT responded only to Mr. Weiss' initial letter seeking system information. Mr. Weiss said that follow-up questions had been sent to MIT but a response to those questions had not yet been received. He said that he planned to schedule an individual proponent/Working Party meeting with MIT.

15. He said that the first proponent meeting was for the purpose of familiarizing system proponents who have not participated in earlier Working Party 2 sessions with the Advisory Commission's activities. At that first meeting, Mr. Weiss said that the group's PERT and Gantt charts and associated assumptions were reviewed by industry segment. The list of questions that the Working Party developed for response by the proponents were posed. Mr. Weiss further stated that a block diagram of a transitional broadcast station was also supplied to the proponents in concert with SS/WP3, Economic Assessment. He added that the proponents were asked to provide written responses from which the Working Party could develop further questions to be presented to the proponents. He said that those follow-up questions were sent to the proponents and system specific replies were presented at the March 25 joint meeting of IS/WP2, SS/WP3, and PS/WP5, the second of three Working Party 2

meetings held since the January Implementation Subcommittee Meeting. Mr. Weiss said that one of the objectives of the follow-up questions was to discern any differences between the systems. In fact, several potential hardware differences between the systems were detected and will be tracked by the Working Party in the future.

16. Mr. Weiss next described "very preliminary" results garnered from the Working Party 2 meetings with the system proponents. He said that there were many similarities and few differences between systems, looking at the general implementation of the systems. He said that there may be some differences in the details, but there had not been an opportunity as yet to analyze the system details of the follow-up responses. He said that one of the first things that the Working Party did was to bring together the power levels of the systems into a common terminology. (A copy of a chart reflecting this work is attached to these minutes, along with other Working Party 2 documentation.) He said that information is being used to determine what might be needed on a local scale in the way of transmitters, antennas, transmission lines and towers. He said that proponents were asked what might be possible in the reuse of existing Studio-to-Transmitter Links (STLs) to carry both NTSC and HDTV. The proponents universally responded that such use might be possible over a single microwave channel. He said that Working Party 2 would be analyzing this data as would PS/WP3 (Spectrum Utilization) and SS/WP3. Mr. Weiss stated that in addition to being utilized to discern differences between systems, the proponent responses to the follow-up questions would be used to facilitate system documentation in areas like system extensibility, the ability to use standard headers and descriptors, the ability to record and playback on consumer VCRs, retention of such functions as stillframes, reverse, forward, and scan on consumer VCRs, broadcast plant requirements, the ability to postprocess compressed signals, and the availability of intermediate levels of compression. He said that another area that Working Party 2 is reviewing is a system's ability to support implementation. Mr. Weiss stated that each proponent must be able to develop and disseminate technical information to support rules and standards, support manufacturers in their start-up phase, provide integrated circuits and initial product evaluation of various manufacturers' equipment to verify that it is in compliance. He added that some individuals have expressed doubt as to whether the proponent systems will be equally able to provide this support, and that the Working Party will be looking into the validity of these reports.

17. Mr. Weiss said that in addition to the block diagrams, the system proponents have been mailed accompanying blank tables with letters and numbers corresponding to those in the blocks and lines in the block diagram. The proponents have been asked to provide descriptions of what should be happening at each of these lettered and numbered points in the system. Additionally, Working Party 2 has been continuing its survey of consumer electronics manufacturers. He noted that manufacturers are maintaining that it would take 2 1/2 to 3 years following the Commission's Report and Order verifying the selected system for receivers to be available from more than one manufacturer rather than from just the successful system proponent, and in quantities beyond a few receivers. Chairman Vradenburg noted that some system manufacturers have

indicated some receivers might be available in stores within 18 months after the decision, but Mr. Weiss stated that claim would have to be verified with the manufacturers. He said that due to the importance of the timing, Working Party 2 has undertaken to validate these findings with the system ~~receivers~~ manufacturers, and so far those who have responded to this survey agree that the timing relating to the availability of receivers, as shown in the PERT Charts, is correct. It was noted that representatives of different sections of the same manufacturing company might give dissimilar responses to the timing survey. Mr. Weiss said that the manufacturing personnel who have responded to this survey are basing their responses on their experiences in providing new television receivers in the climate of new technology. The PERT and Gantt charts have been modified to reflect this new data.

18. Mr. Weiss said that an additional part of the process would be to survey professional equipment manufacturers. He said that an earlier such survey was given limited credence. He said that now there is more of a basis for approaching the professional equipment manufacturers for data on certain kinds of equipment, especially regarding the timing of availability and difficulty of building certain kinds of equipment. Concurrently, SS/WP3 will be handling the economic issues related to the same kinds of questions.

19. Next, Mr. Weiss noted that follow-up has started with the local area groups established in Boston, New York, Chicago, San Francisco, and Los Angeles. He said that these local groups had approached Working Party 2 for further information which has now been provided. These local groups, which were set up to suggest potential problems in implementing ATV at a local level, and to instigate a head start for broadcasters in some of the major markets, will now be revisited and asked to supply information on anything that might help to speed the implementation process.

20. Mr. Weiss noted that the dissemination of technical information had played a major role in the discussion at the last Implementation Subcommittee meeting, and he reported that the Advanced Television Systems Committee (ATSC) has agreed to act as a convener of the documentation effort. Mr. Hopkins said that the documentation process will be a joint effort of several organizations, and that the ATSC will play a coordinating role as well as a specific responsibility role. Mr. Hopkins reported that the executive committee has met on the issue of assignment of roles. Mr. Weiss stressed that it remains critical that such an organization conduct the documentation effort and that it be identified in advance of the system selection in order to avoid delays in the documentation process that might result in delays in the implementation process.

21. Finally, Mr. Weiss reviewed the remaining IS/WP2 activities not previously covered. A chart detailing these activities is attached to the minutes of this meeting.

22. Ms. Fox asked Mr. Weiss about the inclusion of encryption and the ability to insert control commands into the digital signal, and Mr. Weiss

confirmed that these concerns were a major part of the Working Party 2 discussions. He noted that the National Cable Television Association has participated in these discussions, and that these questions have been posed to the system proponents. Mr. Weiss stated that these questions concerned the ability to add encryption information locally in the cable system or whether it has to be done before the signal is scrambled, and how easily this can be done. Chairman Vradenburg asked Working Party 2 to seek out ways to facilitate and expedite the availability of consumer equipment.

23. It was announced that the submissions for the Advisory Committee's final report should be to the Special Panel by December 1992. Thus, Chairman Vradenburg said that the Working Party reports should be planned for submission by Thanksgiving for review by the Implementation Subcommittee.

24. Chairman Vradenburg announced that the next Implementation Subcommittee meeting will be on June 30 at 10:30 a.m. in the Commission Meeting Room.

Submitted:


Gink Harrison

Approved:


George Vradenburg III

ATV Advisory Committee

MEETING: Implementation Subcommittee - April 21, 1992

ATTENDEES

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Charles Hume	Zenith	708 891-8531
Stan Baron	NBC	212-664-7557
Jayne Roads	Hughes Aircraft	703-284-4212
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Report to Implementation Subcommittee
from Working Party 2 on Transition Scenarios

April 21, 1992

1. Proponent Meetings

- a. Process**
- b. Preliminary Results**
- c. Continuing Analysis**

2. Survey of Consumer Electronics Manufacturers

- a. Revisions to Consumer Electronics PERT/Gantt/Assumptions**

3. Survey of Professional Equipment Manufacturers

4. Follow-up with Local Area Groups

5. Dissemination of Technical Information

6. Final IS/WP-2 Activities

Proponent Meetings - Process

- Joint meeting with proponents – 1/13/92 (no MIT)
 - Familiarization with committee's work
 - Presentations by IS/WP-2 by industry segment
 - PERT charts
 - Gantt charts
 - Assumptions
 - Block Diagram (of Transitional Broadcast Station)
 - Questions for Proponents
 - Opportunity for questions from proponents
- Period for proponent analysis (no MIT)
 - Written responses to Questions for Proponents
 - IS/WP-2 Review of responses to Questions
 - Preparation of Follow-up Questions
(IS/WP-2 Conference Calls [x3])

Proponent Meetings - Process - *cont'd.*

- Follow-up meeting with proponents – 3/25/92
 - Joint meeting with SS/WP-3 & PS/WP-5
 - Individual proponent presentations
 - System-specific answers to questions
 - System-specific differences in PERT/Gantt/Assumptions
 - Further questions from IS/WP-2
 - System-specific production hardware differences
 - Initial written response from MIT
 - Joint development of block diagram with SS/WP-3
 - Common descriptive terminology developed
- MIT situation
 - Additional conference call to develop follow-up questions
 - Response anticipated for today's meeting
 - Meeting with MIT yet to be scheduled

Proponent Meetings - Preliminary Results

- Implementation similarities abound
 - Few differences discovered to date
 - Differences may lie in the implementation details
 - Detailed analysis of responses required
- Power levels of systems charted in common terms (table)
 - Data provided by proponents
 - Needed to guide Local Area Groups
 - Impacts on transmitters, antennas, transmission lines, towers
 - Ultimately determines need for new towers
- Reuse of existing STL frequencies likely to be possible
 - Data from proponents
 - Compression of both HDTV and NTSC into single microwave channel
 - Claimed by all proponents responding
 - Initial analysis makes this look feasible
 - Depends on common siting of HDTV & NTSC transmitters
 - Technical analysis to be coordinated with PS/WP-3
 - Cost analysis to be done by SS/WP-3

Power Levels of Proposed Systems

HDTV Proponent Predicted Transmitted Power Levels

	<u>Average Power</u>			<u>Peak Power</u>		
	<u>Lo V</u>	<u>Hi V</u>	<u>UHF</u>	<u>Lo V</u>	<u>Hi V</u>	<u>UHF</u>
Narrow MUSE	< -12.6 dB	< -12.6 dB	< -12.6 dB	-6 dB	-6 dB	-6 dB
DigiCipher	-15 dB	-15 dB	-10 dB	< -10 dB	< -10 dB	< -5 dB
DSC-HDTV	-12 dB to -15 dB			-6 dB to -9 dB		
AD-HDTV	-12 dB	-15 dB	-12 dB	-2 dB	-5 dB	-2 dB
CC-DigiCipher	-15 dB	-15 dB	-10 dB	< -10 dB	< -10 dB	< -5 dB

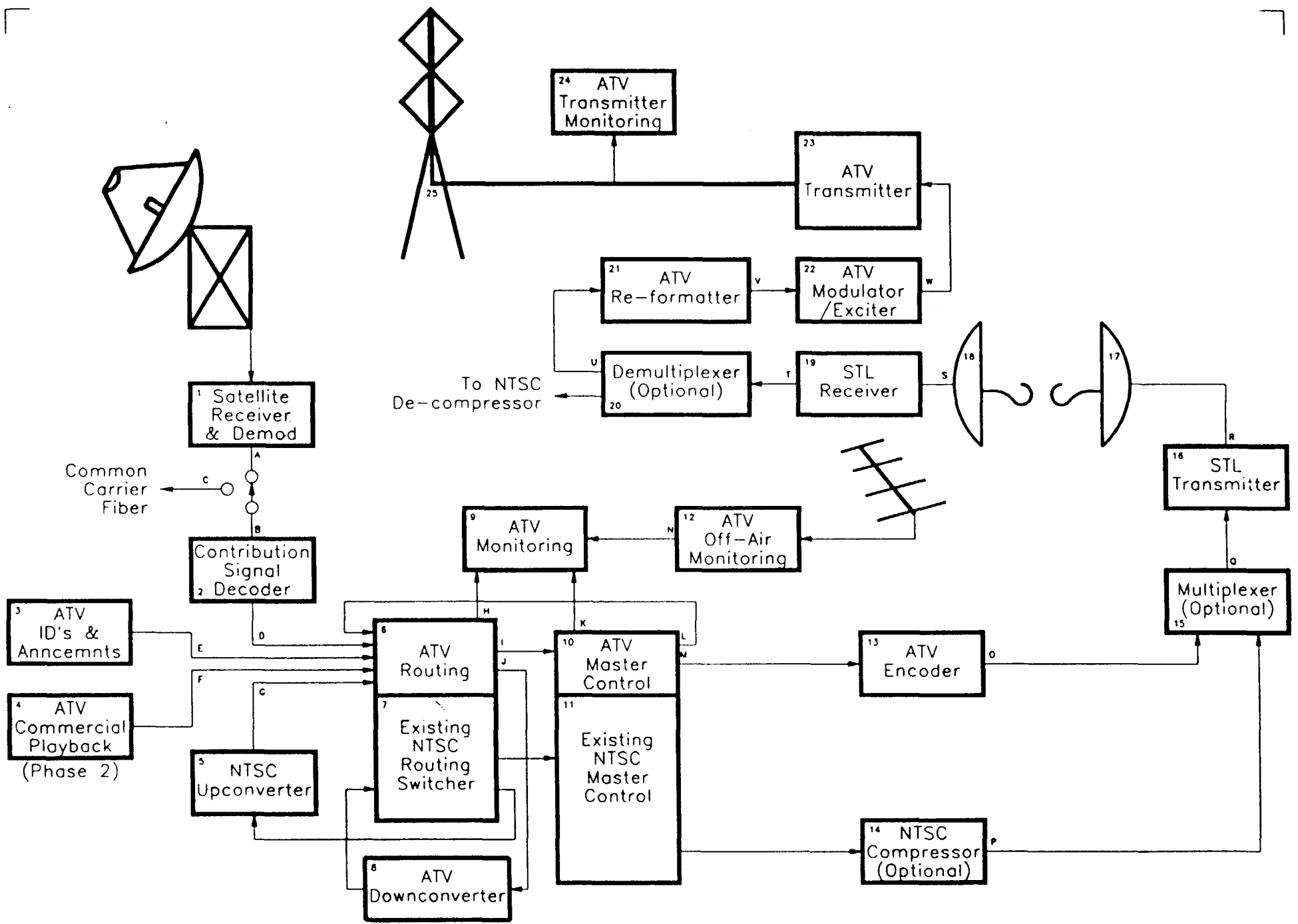
All Reference: NTSC Peak Power

Channels 6 = 20 dBk = 100 kW
 13 = 25 dBk = 316 kW
 36 = 37 dBk = 5000 kW

Based on Proponent Information as of 3/3/92

Proponent Meetings - Continuing Analysis

- Detailed analysis of system differences
 - System extensibility
 - Ability to use standard headers & descriptors
 - Ability to record/playback on Consumer VCR
 - Maintenance of "trick" functions on Consumer VCR
 - Broadcast plant requirements (block diagram)
 - Ability to post-process compressed signals
 - Ease or difficulty of production processing of compressed signals
 - Cuts
 - Keys
 - Full image manipulation
 - Availability of intermediate levels of compression
- Analysis of proponents' abilities to support implementation
 - Concern previously expressed about possible differences
 - Provision of detailed technical information for Rules and Standards
 - Support for manufacturers in start-up phase
 - Integrated circuits for receiver manufacturers
 - Initial product evaluation for standards compliance



ATV Transitional Television Station

Survey of Consumer Electronics Manufacturers

- Findings by Consumer Electronics experts in IS/WP-2
 - Receivers generally available 2½-3 years following FCC decision
 - Proponent might have 6-9 month advantage in start-up
 - General availability required to begin real consumer market
- Survey of Consumer Electronics Manufacturers undertaken to validate findings
 - Because of significance of receiver availability to entire implementation
 - Participants in IS/WP-2 represent 3 C.E. manufacturers
 - All three are members of proponent teams
- Responses received to date confirm IS/WP-2 findings
 - Survey covers total of 15 manufacturers
 - Five responses returned so far – 1/3 of companies surveyed
 - All confirm timing of receiver availability as determined by IS/WP-2 experts
 - Some suggestions received for improvements in PERT/Gantt/Assumptions

Survey of Consumer Electronics Manufacturers - *cont'd.*

- IS/WP-2 documents modified based on inputs from C.E. manufacturers
 - Single set of PERT/Gantt/Assumptions split into three sets
 - Categorizes manufacturers by types
 - Proponent consumer electronics manufacturer
 - Non-proponent manufacturer that develops its own Integrated Circuits
 - Non-proponent manufacturer that purchases Integrated Circuits from a vendor
 - Differentiation will allow more careful examination of timing of receiver availability

Survey of Professional Equipment Manufacturers

- Professional equipment manufacturers surveyed once at beginning of process
 - Survey based solely on different production standards
 - Only information available at the time
 - Apparent that many answers were given to influence the outcome of the process
 - Results of the initial survey were discarded as inconclusive
- Professional equipment manufacturers to be surveyed once again
 - Far more known about the system proposals
 - Fewer options for underlying raster specifications
 - Opportunities for other forms of compression must be explored
 - IS/WP-2 to concentrate on timing of availability of equipment
 - Will likely work in cooperation with SS/WP-3 handling the economic issues

Follow-up with Local Area Groups

- Local Area Groups established in five major cities
 - Boston
 - New York
 - Chicago
 - San Francisco
 - Los Angeles
- Two-fold purpose
 - Gain implementation information for IS/WP-2 from potential problem cities
 - Instigate head start for broadcasters in some of the major markets
- Local Area Groups needed more information to proceed
 - Data on system power levels for coverage equivalent to NTSC
 - System transmitter linearity requirements and headroom capabilities
 - Availability and power handling of wideband antennas
 - Other antenna options
- Most of needed information now available
 - Local Area Groups to be asked to look at their situations again and report

Dissemination of Technical Information

- **Dissemination of technical info identified by IS/WP-2 as critical to implementation**
 - Required for setting of FCC Rules
 - Required to permit manufacturing at all levels
 - Required to permit operation of systems
 - On critical path for all industry segments and participants
 - Major part of IS/WP-2 Report to IS on 11/19/91 & in all documentation
- **Now understood that ATSC will act as convenor of documentation effort**
 - Remains critical that organization to carry out tasks be identified in advance
 - Must avoid delays in starting process once system selection is made
 - Any delay in technical documentation delays entire implementation

Final IS/WP-2 Activities

- Integration of PERT/Gantt/Assumptions into single Implementation program
 - Currently done by industry segment
 - Plan is to provide unified structure for overall Implementation
 - Will work out inter-industry interactions
- Differentiation of system implementations, if possible
- Preparation of Report to SS/WP-4
 - First draft requested for 5/15/92
 - Detailed description of document provided by SS/WP-4
 - One page summary (to be included in ACATS Final Report)
 - Approx. 25-page backup detail document as part of Appendix
 - Other documentation as necessary for communication to FCC
- Work on Report to SS/WP-4 already begun
 - Outline prepared of IS/WP-2 Fifth Interim Report
 - Will serve as starting point for preparation of Final Report